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ABSTRACT

A description is provided of the structure, contents, and potential uses of a National Storehouse of Educational Materials Successes. The Storehouse is depicted as being a collection of evidence relating to what works in education. Details are presented on its contents, its expected users, the functions it could serve, and its operational and organizational features. Six organizational models are discussed and an appendix is included which gives some selected examples of the Storehouse's components. (PB)



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THE NATIONAL STOREHOUSE OF EDUCATIONAL MATERIALS/SUCCESSES: SOME SUMMARY MATERIALS

Allen Schmieder Jorie Mark Office of Career Blucation, Division of Education Systems Development, United States Office of Education April, 1974

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THE NATIONAL STOREHOUSE OF EDUCATIONAL MATERIALS/SUCCESSES

The Problem

Leading decision-makers concerned with the directions, structures and support bases of our American Society (of late being joined by more and more leaders within the educational ranks) claim that educators have little, if any, informed experience--accumulated evidence--upon which to base decisions about anything that is important in education. Even the teaching profession, the group that should have the best first-hand knowledge about what works and what doesn't work, is generally in favor of maintaining the status quo until more "exact evidence" about the educ-tional process is available. Educational researchers are scrambling to prove that teaching does make a difference and that educators do know some things that are not well known to the average person on the street.

In less than 200 years the educators of this nation have built what is probably the world's most democratic and effective educational system. Although the heavens and many other equally inspiring forces were probably on the side of this 85 billion dollar, 60 million participant enterprise, it neither grew like topsy nor evolved without considerable attention to evidence and thoughtful decisions. Consequently it seems ludicrous to charge that today's educators have no evidence upon which to base program decisions. Because of the massive size of the educational enterprise, the continuity of its existence, and the unusual importance placed upon it by the citizens of this nation, it is probable that educators are steeped in more evidence about the nature of their trade than practitioners of any other single art, trade, or profession in the American social system.

The purpose of this paper is not to rally opposition to the narrow "hard evidence" (whatever that is) worshippers or the educational doom-sayers, but to begin a dialogue about how the profession can more systematically organize and use the sting National Storehouse of Educational Materials and Successes that has been

👼 richly and fully built over the last 200 years.

SOME EXPECTED OUTCOMES

Short Range:

- 1. Clear statement of the problem, recommendations about how to deal with it, a prioritizing of the recommendations, a strategy to implement the recommendations, and a determination of the next steps to be taken.
- 2. A first cut on the nature of the National Storehouse
- 3. A beginning list of locations and persons engaged in major component development—with a brief description of their programs
- 4. A beginning bibliography of publications relating to the building and using of the National Storehouse
- 5. A first draft of a publication presenting the Storehouse case to leading educators
- 6. A specific strategy for further exploring the Storehouse concept

Long Range:

Primary

- 1. Better definition of the levels of evidence/successes available in the Storehouse
- 2. Better knowledge of the availability of evidence/successes at these levels
- 3. More systematic relationship between evidence and program/policy decisions
- 4. More systematic design for utilizing and adding to the Store-house
- 5. Greater use of the National Storehouse
- 6. Greater public awareness of the successes of American education
- 7. A plan for more effective sharing of successes within particular educational specialities, e.g. competency-based education



- 8. A plan for more effective sharing of successes between particular educational concepts, e.g. competency-based education and interaction analysis or competency-based education and teaching centers'
- 9. A plan for more effective sharing of successes between teacher education and other professions, e.g. competency-based teacher education and competency-based dental education
- 10. A plan for more effective sharing of successes between education and business and industry regarding similar systems, e.g. storage and retrieval of educational information and storage and retrieval of airlines information; human relations vis a vis the community in education and human relations vis a vis the community in urban planning
- 11. A plan for more effective sharing of successes between education and business and industry regarding the relationship between their respective "Storehouses" and policy decisionmaking

Secondary

- 1. More effective systems of storage and retrieval of validated products and processes
- 2. More effective systems of validating products and processes
- 3. Better understanding of R & D needs
- 4. Less duplication and overlap of R & D efforts
- 5. More systematic relationship between theory and practice
- 6. Development of levels of evidence regarding educational success



THE NATURE OF THE NATIONAL STOREHOUSE

What It Is

The National Storehouse is a collection of evidence -- materials, programs, ideas, concepts and practices -- of what works in education today. The storehouse exists. What does not exist is an organizational framework that could point up gaps in what we know, stimulate efforts to close them up, and provide a typology that would embrace new, as-yet unthought of problems. The missing organizational framework would make the evidence easily accessible to users, and would provide information on validation.

Who Is It For

The National Storehouse would be a user or consumer-based index with entries classified by topics focused on use or intended users. It would therefore be indexed in terms of problems or tasks an educator must cope with in order to be effective:

- --- the practitioner identifies a teacher competency for which he wants to provide training, so turns to the National Storehouse for a search of what's available
- --- the policy-maker is charged with formulating a new piece of legislation and needs information about it (e.g., reading program) so turns to the National Storehouse for research evidence and a bank of knowledgeable people
- --- the high school teacher of English wants training in how to cope with student response to literature, enters the system seeking English, high school, student response--and the level of evidence desired. The computer search would identify the



appropriate alternative materials relating to the problems as described

--- the policy-maker--a school board, interested in improving its elementary staff development program--could enter the Store-house by identifying school personnel, teacher training, elementary school, in-service, in order to see if materials exist that address this question.

In organizing the National Storehouse, therefore, we talk to the question, how will it assist

teachers
teacher educators
legislators - national policy-makers
researchers
educational consumers
educational administrators
lay administrators

What It Does

The National Storehouse identifies what we have, and as an immediate outgrowth, identifies what we need. The National Storehouse, therefore, shaped by need (or the consumer) identifies for the potential user the origins (theory, experience, hunch, invention) of the evidence; then explains its current state of development (idea, pilot test, programmatic test, experimental test), its target, its relevance to broad categories of problems (policy decisions, R&D programs, practical application in teacher, training, and organization and administration of schooling.)

Organized so it can answer the question, 'What do we know aboutX?", and open-ended as well, the National Storehouse could classify evidence in two ways:



- 1) by the categories of information a user thinks;
- 2) different conceptions or catagories of educational problems. This would permit the user to employ his/her own search strategy and also invite him to look at the items in a variety of different ways

Such an index could be constructed logically, based on some kind of analysis of problem areas. In a word, the system should be developed deductively from what a consensus of practitioners and laymen say we need, not inductively from what we know we have—although the latter would also be included.

Retrieval and Dissemination

A user- or needs-oriented National Storehouse must assure easy access to practitioners and policy-makers.

The first step toward easy retrieval might be the organization of the index of storehouse materials into a simple directory. Contents might be divided into: (1) printed materials, (2) audio-visual materials, (3) ideas, (4) people and places. Listings should be short: product, contact name and address, one-line summary, extent of validation, cost. The directory should be set up as a loose-leaf binder so that pages may be printed and distributed for insert. It should also be free--or the cost should be nominal, covering only mailing expenses. Obviously, then, the directory must be funded by Federal or foundation monies. This foundation or Federal grant should be large enough to permit some subsidization of the producers of the items listed in the catalogue while producers seek ways to bring down production costs.



Imless materials costs are broght down, the easy access suggested above for practitioners will not be accomplished.

But to get that directory into the hands of the practitioners will require a major dissemination program. Such a program should be mounted by a communications expert who is professionally competent to utilize all media approaches to the problem. Such approaches would include such standard methods as direct mail notifications to local and state education agencies, associations and unions, to teacher centers, to the various national, state and local professional education associations. But the dissemination program should go much further. Exposure should mainly involve public service time and space in the education press (national, state and local); the education trade and professional press; local, close-circuit and cable radio and television; local and state conferences; displays at national conferences and so on.

The message should be simple: The diversity and experience of American education is probably the greatest in the world. And much of what has been learned about the way to do things better is available for educational program planners. To find out more about these rich resources write to: The National Storehouse, Box XXX, Washington, D.C.

Costs for such a program should be explored. A follow-up to (but also simultaneous with) the dissemination program might be the use of trained leaders who could go out on request to work with local teachers on use of the materials and methods. The communications expert could make suggestions on how best to coordinate this. But unless state and local



education agencies--or a foundation--can underwrite such a program, costs might well be prohibitive.

Quality Control

But a mechanism must be developed to inform users about the quality of the evidence.

Evidence should be thought of as a device for either hypothesis-testing or decision-making. Evaluation criteria differ depending on which of these two purposes the evidence is to serve. Evidence is generally 'harder' for hypothesis-testing than for decision-making, although this may account for bad decision-making.

The second factor determining the quality of evidence is the stage of development of the idea, program, or product. Different evidence is expected for a product in its earlier stages than in its "finished" stages. Thirdly, things that work--hard evidence--within the context of an integrated and sequenced program may not work when taken out of that context.

Rather than searching for 'hard' evidence, the functions of rating might better be served by classifying items according to where they are in a sequence of steps in the R&D process instead of rating them. The sequence might run from armchair ideas, entirely untested, through ones tried out in laboratory experiments, in simulation or microteaching settings, to those field tested and ready for dissemination. It should be possible to define a set quite objectively; and where a piece of evidence lies in this sequence should be at least as useful to know as



how it was rated by somebody. If this kind of rating system were employed, it would be possible to enter the storehouse asking for the level of development (e.g., how much the storehouse had in that subject at a particular moment that had been thoroughly field tested.) A display could be called for which would show such a quality control process by area, and it would be easy to see where weaknesses and strengths lay--a useful tool for planning, for communicating with legislators, etc.

How To Organize It

A number of models have been proposed, and they are by no means mutually exclusive:

Model A

- I. Develop information sources:
 - 1. Gather available materials (including ideas) under four broad headings: (a) teaching skill or performance; (b) curriculum materials and design by intended outcomes; (c) training of educational personnel; (d) organization of instruction and schooling.
 - 2. Prepare for each item a development history--who developed the product or idea, its theoretical or other sources; its use; its current status.
 - 3. Classify each item by the criterion of its effectiveness the user has selected and by other criteria to which it might be relevant.
 - 4. Gather evidence from the developer and other users about evidence relative to effectiveness with respect to the criteria.
 - 5. Sort items by their relevance to policy, R&D, or practice.



- II. Develop the tagging system so anyone who want to search the system can do so;
 - 1. Invite groups of potential users to ask questions of the system.
 - 2. Tag items by questions.
 - 3. Identify unanswerable questions
 - 4. Determine whether the question is unanswerable because of the classification system or because there is no information in the system

III. Develop validation of system:

- 1. Invite conceptualizers of problems to ask questions of the system (e.g., Jencks asks the system for information on school effectiveness; Coleman asks the system for information on the effects of desegregation)
- 2. Invite a group of people to see if they can "break" the system (e.g., ask it questions it cannot answer.

Ultimately evidence might be categorized by eventual goal and stage of development:

Goal:

Produce
Significant
Study
Gains

IDIA



Model B

1. Develop use-user categories:

Teachers
Teacher Trainers
Teacher Trainers
Decision-Makers
Decision-Makers
Researchers
Evaluators
General Public

Primary User

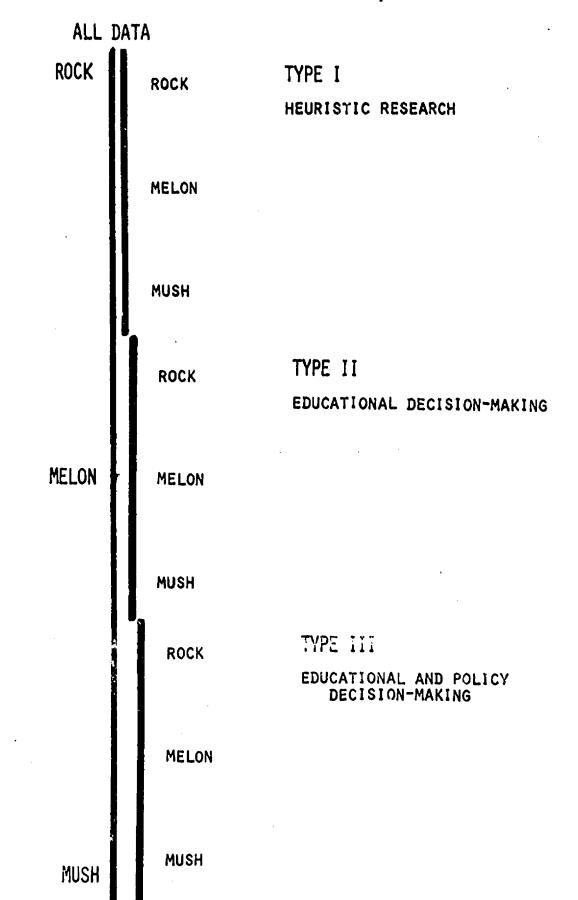
Primary Use

Education of Children at Various Levels
Pre-Service Teacher Education
In-Service Teacher Education
Educational Decision Making at Various Levels
Policy Decision Making at Various Levels
Heuristics
Mission Research
Synthesis

Each <u>Use</u> or <u>User</u> category would generate its own discrete, though perhaps overlapping, set of categories designed to make sense to those interested in it for that purpose (e.g., DISTAR might have high interest for elementary teachers, moderate interest for teacher trainers, little interest for decision-makers, no interest for heuristic researchers, moderate interest for mission researchers, and be of great interest for synthesizers, and dissemination to the general public.



II. Consider the Hardness of Data as a Relational Concept:



Model C

- I. Seek answers to following questions:
 - 1. What kind of materials should be included?
 - a. Teacher Training materials only?
 - b. Non-Text materials only?
 - c. Materials that require trainee to perform?
 - 2. What is the purpose of the Storehouse?
 - a. To provide user with a resource for improving his performance?
 - b. To supply a research with material to employ in his investigation?
 - c. To collect information for help in policy decisions?
 - d. To devellp inventory of materials?
 - 3. Where should Storehouse be located?
 - a. a central depository
 - b. a central depository with regional locations
 - c. regional locations
 - d. no specific location but an office with referral capability only
 - 4. How would the Storehouse be supported?
 - a. Federal support
 - b. Federal support and private support
 - c. Private support
 - d. Self-supporting
 - e. Other

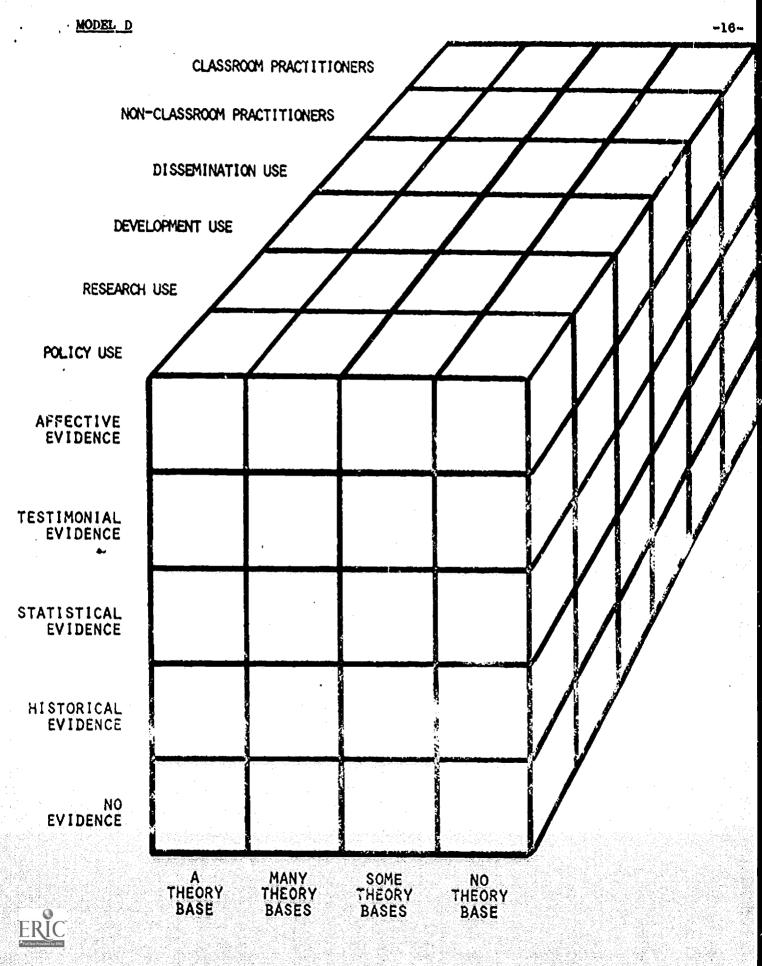


Model C Continued

- 5. How would Storehouse be managed?
 - a. by teachers + college types + research types?
 - b. by MiA, AACITI, AIRA, ASCD, AFT, ATTI and other organizations
 - c. Other ways
- 6. What categories of organization will allow user to enter the storehouse?
 - A. Category I Levels of Evidence by Results
 - 1. paper pencil test
 - 2. verbalize or write what one learned
 - 3. perform in simulated situation
 - 4. perform in classroom situation
 - 5. short-term results with students
 - 6. lasting (long-term) results with students
 - 7. other
 - B. Category II Subject Areas
 - 1. English
 - 2. Math
 - 3. Other (including Special Education & Early Childhood)
 - 4. Generic
 - C. Category III Teacher Activities
 - 1. Planning
 - 2. Questioning
 - 3. Diagnosing
 - 4. Many more
 - D. Category IV Setting
 - 1. Urban



- 2. Rural
- 3. Other
- II. Category V Grade Levels
 - 1. Primary
 - 2. Intermediate
 - 3. Other
- F. Other Categories
- 7. Content of each entry
 - a. description of material
 - b. cost
 - c. where available
 - d. time for use
 - e. source and nature of development
- 8. Materials should be "keyed" to other big questions of:
 - a. school finance
 - b. school policy
 - c. social concerns
 - d. other



The figure filmstrates a 120 cell cube which depicts a multiple category system which would be used to analyze, sort, or describe storehouse materials.

The category system would have three dimensions -- one set of five descriptors of types of evidence, one set of four descriptors of theoretical bases, and one set of descriptors of user categories.

The last would be subdivided into multiple user-determined subcategories.

Evidence Descriptors

The descriptors related to evidence deal with the type of evidence which supports the material. They are:

Has Affective Evidence: "I like it."

"It had a positive effect on me."

"It was lousy."

Has Testimonial Evidence: 'We did it and it works."

"It had no visible effect."

"Only three teachers are now using it."

Has Statistical Evidence: "A statistical random sample...."

" .0001"

Has Historical (Judgmental Philosophical, Theoretical)

Evidence:

"According to NIE,"

"For 100 years,"

Has No Evidence:

Incoretical Categories

It is conceivable that if one could name the various theories currently, supporting teacher training material one could establish a set of descriptors accordingly. Until such is possible, a four part category system might be usable:



Model D Continued

Has a Theoretical Base:

llas Theoretical Bases:

llas Some Theoretical Base:

Has No Theoretical Base:

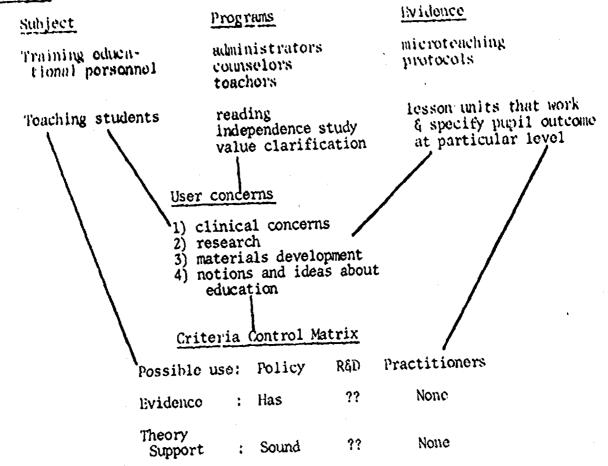
User Categories

These categories are basically undetermined. They will name as the descriptors those which will be used to extract information and material from the Storehouse. The categories will be determined by surveying of a particular group of users as to 'what kind of information or material they need?", 'what questions will they ask of the Storehouse?", 'What?" While any category of 'User' could form a group to be surveyed, at least six can be readily identified:

- a. policy makers
- b. research users
- c. developer users
- d. dissemination users
- e. non-classroom practitioners
- f. classroom practitioners



Model R



THE NATIONAL STOREHOUSE OF EDUCATIONAL MATERIALS/SUCCESSES: EVIDENCE NEEDED FOR POLICY-MAKING/PROGRAM BUILDING

- --- Define Hard Evidence (Class I Evidence)
- ---Estimate Demand/Need for Hard Evidence
- --- Estimate Availability of Hard Evidence
- --- Estimate Gaps Between Demand and Availability
- --- Estimate Cost and Time to Fill Gaps
- --- Recommend Alternative Strategies for Filling Gaps
- --- Define Loss Hard Evidence (Class II Evidence)
- --- Etc. (Repeat steps above until supply and demand are equal)
- ---The Need to Educate the Public about
 - -What evidence is
 - -What is available
 - -What evidence professional educators will use and why,
 - i.c., we explain and tell them, they don't lay it on us!



SOME SELECTED EXAMPLES OF

NATIONAL STOREHOUSE COMPONENTS



THE NATIONAL STOREHOUSE OF EDUCATIONAL MATERIALS/SUCCESSES: TEACHER EDUCATION COMPONENT--STUDIES OF TEACHER EFFECTIVENESS

- --- 1896 Characteristics of the best teachers as recognized by students (Kratz)
- --- 1905 First quantitative studies relating competence of teachers to various other characteristics (Merian)
- --- 1930 An analysis of 209 different systems for rating teachers (Barr and Bmans)
- --- 1945-46 Intensive analysis of teacher's role in classroom (Anderson, et. al.)
- --- 1948 Survey of investigations into the measurement and predictions of teacher effectiveness (Barr)

79 studies analyzed

- 46 used supervisor's or principal's ratings
- 15 used grades in student teaching
- 18 used measure of changes in pupils
- --- 1951 Assessment of socio-emotional climate in learning situations (Withell)

7 categories of teacher statements

--- 195h Identification and review of all major teacher effectiveness studies completed between 1900 and 1952 (Morsh and Wilder)

900 references

360 abstractions

20 predictors of effectiveness identified

--- 1958 Analysis of 1,000 studies on teacher effectiveness (Mitzel and Cross)

20 of the studies (2%) involved actual measures of teacher effectiveness

--- 1960 Analysis of teacher characteristics (Ryans)

6,000 teachers in 1700 schools in 450 school systems 12 gameral "trends"



TRACHER EDUCATION COMPONENT -- STUDIES OF TRACHER EFFECTIVENESS, Cont.

--- 1966 Analysis of verbal behavior in the classroom (Bellack)

4 pedagogical moves

4 functionally different types of meaning communicated by teachers and students

5 general roles for classroom language game

--- 1971-73 Search for validated teacher characteristics or competencies (Rosenshine and Furst)

50 studies

11 main characteristics

--- 1972 Analysis of student learning (Jenoks)

"Most tests used to measure student learnin . . . insensitive to differences in teaching behavior."

--- 1960-74 Evaluative teaching units

Flanders - social studies/arithmetic

Schautz and Nuthall - electricity

Joyce - social studies

Noy - literature

---1974 Exhaustive review and assessment of studies of teacher effects on students (Dunkin and Biddle)



THE NATIONAL STOREHOUSE OF EDUCATIONAL MATERIALS/SUCCESSES: TEACHER EDUCATION COMPONENT--SOME BEGINNING RESOURCES/REFERENCES

Teacher Training Products: The Study of the Field (750), Cage

Protocol Materials Catalog (112), Florida SEA

A General Catalog of Teaching Skills, Turner

A Catalogue of Growth in the Pedagogical Domain, Hudgins

The Houston Module Bank (225), University of Houston

NIE R & D Center Products (est. 100)

Far West Laboratory Mini Courses (20), Berliner, Borg, Flanders, Ward

Validated Teacher Characteristics or Dompetencies/Process Variables (11), Rosenshine and Furst

Critical Elements in Teaching (42), Cruickshank

Sharing Educational Successes -- ESEA Title I

Sharing Educational Successes -- ESEA Title III

Tested Modules in Competency-Based Education (googol), 120 CBE IHE's

Data on Teaching and Learning in Theses and Dissertations in Education and Related Fields (googol-plex)

*Number in parens indicates approximate number of products included



- THE NATIONAL STOREHOUSE OF EDUCATIONAL MATERIALS/SUCCESSES:
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- Sharing Education Success, A Handbook for Validation of Educational Practices. Washington, D. C.: United States Office of Education, National Advisory Council on Supplementary Centers and Services, 1974.
- ner, Richard L. (ed.), A General Catalog of Teaching Skills

THE NATIONAL STOREHOUSE OF EDUCATIONAL MATERIALS/SUCCESSES: PROFILE OF SOME POTENTIAL EXPERIENCE BASES

- 1. 18,000 school districts
 - 700 "community" schools
 - 325 schools using individualized instruction
 - 4,500 teaching centers
 - x alternative schools
- 2. 50 states
 - 20 CBE mandates
 - 9 career education mandates
 - 4 teacher center mandates
- 3. 1,200 teacher training institutions
 - 120 programs
 - x teacher centers



SOME INTERESTING FACTS

- Many powerful educational policy-makers do not think that it exists.
- 2. Hany educators feel that it is already too bountiful and needs no further \$ for development
- 3. Many feel that ERIC has the Storehouse well under control
- 4. Storehouse materials with less validation sell faster
- 5. Most new validated materials are either on a shelf somewhere or used in a single classroom or program
- 6. Most consumers do not like to go to some "other" place to use
 catalogs re materials banks/resources--they want them located
 somewhere in their office
- 7. The Newsletter is one of the highest demand consumer items in the dissemination business
- 8. There is a very thin market for many of the most important materials developed
- 9. Regarding product validation--what might be hard evidence to one kind of consumer, is much to another kind!
- 10. Many validated approaches are born in theses and dissertations and eventually die there
- 11. Most producers are reluctant to share materials (a) which are unvalidated; (b) which might be plagarized or copyrighted by someone



- 12. Publishers are reluctant to produce high risk materials
- 13. All producers are potential consumers and all consumers are potential producers
- 14. College and university staff generally feel that they are the only ones sufficiently qualified to produce valid materials for widespread use--school staff generally feel that college and university staff generally don't know enough about the real world to produce valid materials.
- 15. Materials in the process of "becoming" are usually more related to "up front" RD&D people than those that have "already become"-- yet dissemination strategies almost always relate to "finished products."